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EXAMINER	
ZERVIGON, RUDY	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/942,330	WILLIAMS ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 21-26* is/are pending in the application.

4a) Of the above claim(s) *25 and 26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 8, 10, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alan Notman (USPat. 4,311,671). Alan Notman teaches a catalytic gas reactor (Figure 1; column 6, line 59 – column 7, line 31) including:

i. An enclosure (10) which defines an interior void (Figure 1) and a longitudinal axis down the center of item 42

ii. A first partition (16A; column 6, lines 59-68) having a first orifice ("central hole"; column 2, lines 1-15; column 7, lines 3-7) defined therein, the first partition being positioned within the interior void such that:

   a. The first partition divides the interior void into a first chamber (12A) and a second chamber (12B) and

   b. The first orifice is in fluid communication with the first chamber and the second chamber (Figure 1; column 7, lines 3-7)

iii. A gas connector (conduit 34) which has:

   a. A passageway (34) defined there through and

   b. A gas port (30) in fluid communication with the passageway and supplied by a gas source (see arrow entering 30; column 7, lines 1-10), the passageway having an inlet (34) and an outlet (32) and being in direct fluid communication with the first chamber (12A) of the enclosure

c. The gas source is advanced into the passageway (34) of the gas connector (conduit 34) via conduit 26

d. The gas port (30) being downstream of the gas connector inlet (34) and downstream of the gas connector outlet (32)

iv. A gas dispenser (28A/B) in direct fluid communication with the second chamber (12B) of the enclosure; and

v. An exit port (50) in fluid communication with the interior

vi. A second partition (16B) having a second orifice (holes in 16B, not labeled, see crossing arrows indicating flow) therein wherein

a. The second partition is positioned within the second chamber (12B)

b. The first orifice has a first central axis (collinear to central axis of 42) and being aligned (colinear) with the longitudinal axis of the enclosure, the first central axis is further unobstructed such that gas can pass (see flow arrows) from the first chamber to the second chamber through the first central axis

c. The second orifice (holes in 16B other than 42, not labeled, see crossing arrows indicating flow) has a second central axis and the second central axis of the second orifice is offset (see Figure 1) relative to the first central axis of the first orifice

Alan Notman further teaches water vapor gas source ("boiler"; column 6, lines 32-35; column 4, lines 55-60; Table 1 - column 10, lines 40-60). Further, it is well established that in apparatus claims it is inherent that Alan Notman's gas processing apparatus can process water vapor gas. It is well established that apparatus claims must be structurally distinguished from the prior art (In

re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does ."(emphasis in original) Hewlett - Packard Co . v. Bausch & Lomb Inc ., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), MPEP – 2114)

Alan Notman does not teach that his gas port (30) is upstream of the gas connector outlet (32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the length of Alan Notman's gas connector (conduit 34) such that his gas port (30) is upstream of the gas connector outlet (32).

Motivation to optimize the length of Alan Notman's gas connector (conduit 34) such that his gas port (30) is upstream of the gas connector outlet (32) is to optimize gas mixing in Alan Notman's first chamber (12A) as taught by Alan Notman (column 1, lines 25-38; column 2, lines 9-15).

3. Claims 3-6, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alan Notman (USPat. 4,311,671). Alan Notman is discussed above. Alan Notman further teaches points on Alan Notman's partitions (16A,B,C) that are collinear with the chamber's longitudinal axis (Figure 1). Alan Notman further teaches adjacent partitions (16A/B; 16B/C) such that each partition forms corresponding sub-chambers by interposing the corresponding partitions (Figure 1). Alan Notman further teaches partition orifice that are in direct fluid communication (see arrows in Figure 1) with the first chamber and the corresponding sub-chamber. Alan Notman further teaches an end wall (22c, Figure 1).

Alan Notman further teaches plural orifice (holes in 16A,B,C; not labeled, see crossing arrows indicating flow) with corresponding central axis where each orifice's central axis is offset relative to the central axis of each other orifice. Alan Notman further teaches a longitudinal axis,

as above, that divides the enclosure into a first and second half (Figure 1) where orifice of each partition are either located in the first or second half of the partition.

Alan Notman does not teach partitions, in Figure 1, beyond 3. As a result, Alan Notman does not teach fourth, fifth, and sixth partitions resulting in corresponding fourth, fifth, and sixth sub-chambers.

Alan Notman does not teach that his first and second orifice comprise the largest orifice in his first and second partitions respectively such that the central axis of the first and second orifice are offset relative to each other.

Alan Notman does not teach his gas port disposed between the inlet and outlet of his passageway.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to duplicate Alan Notman's partitions thereby adding additional partitions to Alan Notman's catalytic gas reactor resulting in corresponding fourth, fifth, and sixth sub-chambers, and to optimize the dimension of Notman's orifice in each of the first and second partitions such that the largest orifice of each partition produce axis that are offset relative to each other, and to optimize the dimension (height) of Notman's gas connector passageway such that his gas port disposed between the inlet and outlet of his passageway.

Motivation to duplicate Alan Notman's partitions thereby adding additional partitions to Alan Notman's catalytic gas reactor resulting in corresponding fourth, fifth, and sixth sub-chambers, and to optimize the dimension of Notman's orifice in each of the first and second partitions such that the largest orifice of each partition produce axis that are offset relative to each other, and to optimize the dimension (height) of Notman's gas connector passageway such that his gas port

disposed between the inlet and outlet of his passageway is to provide for longer residence time for the flowing gasses (column 3, lines 7-8; column 4, lines 12-17). Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04). Further, It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04).

4. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mundt (USPat. 5,137,701) in view of Alan Notman (USPat. 4,311,671). Mundt teaches an etch apparatus (12, Figure 1; column 1, lines 22-34) which generates an etch gas product (down stream of item 12), where the etch gas apparatus being in fluid communication with an enclosure (Figure 3) defining the process effluent abatement arrangement (18, 32, 16, 20, 36; Figure 1; column 5, lines 13-38).

Alan Notman is discussed above. However, Alan Notman does not teach an etch apparatus which generates an etch gas product, where the etch gas apparatus being in fluid communication with the gas connector such that the etch gas product generated by the etch apparatus is advanced into the interior void of the enclosure defining the process effluent abatement arrangement.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus.

Motivation to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus is to reduce the hazardous process chemicals from the etch reactor as taught by Mundt (column 1, lines 22-33).

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alan Notman (USPat. 4,311,671) in view of Thomas G. McGinness. (USPat. 5,384,051). Alan Notman is discussed above. Alan Notman further teaches heating elements (60,62) as heat exchangers that are in thermal communication with the gas provided by the gas source at exchanger 62. As a result, Alan Notman does not teach an electrical heating element that is in thermal communication with the gas provided by the gas source. Thomas G. McGinness teaches an electrical heating element (32, Figure 1; column 8, lines 55-62) that is in thermal communication with the gas ("carrier fluid/oxidizer mixture") provided by the gas source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Alan Notman's heating element with McGinness' electrical heating element.

Motivation to replace Alan Notman's heating element with McGinness' electrical heating element is to provide an alternate and equivalent means for heating.

6. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mundt (USPat. 5,137,701) in view of Alan Notman (USPat. 4,311,671) and Thomas G. McGinness. (USPat. 5,384,051). Alan Notman and Mundt are discussed above. Alan Notman further teaches heating elements (60,62) as heat exchangers that are in thermal communication with the gas provided by the gas source at exchanger 62. As a result, Alan Notman does not teach an electrical heating element that is in thermal communication with the gas provided by the gas source. Thomas G. McGinness teaches an electrical heating element (32, Figure 1; column 8,

lines 55-62) that is in thermal communication with the gas ("carrier fluid/oxidizer mixture") provided by the gas source.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add McGinness' heating element to be in thermal communication with the gas provided by the gas source of Alan Notman and Mundt, and to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus.

Motivation to add McGinness' heating element to be in thermal communication with the gas provided by the gas source of Alan Notman is to control the temperature of the gas provided by the gas source of Alan Notman and Mundt.

Motivation to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus is to reduce the hazardous process chemicals from the etch reactor as taught by Mundt (column 1, lines 22-33).

Response to Arguments

7. Applicant's arguments filed September 10, 2004 have been fully considered but they are not persuasive.

8. Applicant states:

"

However, contrary to the Examiner's statement that Notman has "a gas port (30) in fluid communication with the passageway (conduit 34) and supplied by a gas source" the gas connector (34) of Notman does not have a gas port in passageway (conduit 34) as is recited in Applicant's claim 1.

“

The Examiner disagrees with what Applicant’s claim 1 text is:

“

a gas connector which has (i) a passageway defined therethrough and (ii) a gas port in fluid communication with said passageway, said passageway (A) having an inlet and an outlet and (B) being in direct fluid communication with said first chamber of said enclosure, said gas port being downstream of said inlet and upstream of said outlet;

“

And, as recited previously, the Examiner conveyed Notman:

“

A gas connector (conduit 34) which has: A passageway (34) defined there through and a gas port (30) in fluid communication with the passageway and supplied by a gas source (see arrow entering 30; column 7, lines 1-10), the passageway having an inlet (34) and an outlet (32) and being in direct fluid communication with the first chamber (12A) of the enclosure....Alan Notman does not teach that his gas port (30) is upstream of the gas connector outlet (32)

“

These facts are demonstrated by Notman’s Figure 1 and Applicant’s corresponding Figure 1. Applicant’s connector 68, gas port 72, and passageway 70 in Figure 1 are claimed such that Applicant’s argument of “Since the sparger (30) is a separate tube, it is clear that the Notman gas connector (34) does not have a gas port in fluid communication...” is an argument based on what is shown and not claimed in Applicant’s invention:

9. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "Since the sparger (30) is a separate tube, it is clear that the Notman gas connector (34) does not have a gas port in fluid communication...") are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

10. Applicant states:

"

Applicants respectfully disagree, first because Notman does not teach or suggest a gas port in a gas connector and second because there is not suggestion or motivation in Notman to make such a modification even assuming that Notman taught a gas port in a gas connector that was downstream of the gas connector inlet.

"

11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "a gas port in a gas connector ") are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

12. Applicant states:

"

Thus, in Notman the outgoing gas from the feed holes 32 is in a thermal relationship with the gas coming from the below the catalyst bed 12C and thus grid 16C as carried via passageway formed

between the inner tube 42 and the outer tube 26 and flowing into the heat exchanger 40. Such a thermal relationship would be lost if the sparger gas were introduced into the incoming gas (via conduit 34) of Notman.

"

In response, the Examiner nowhere finds in Notman a "thermal relationship" barring the Examiner's art-based motivation to optimize the length of Alan Notman's gas connector (conduit 34) such that his gas port (30) is upstream of the gas connector outlet (32) is to optimize gas mixing in Alan Notman's first chamber (12A) as taught by Alan Notman (column 1, lines 25-38; column 2, lines 9-15).

13. Applicant states:

"

In particular, the central hole in the grid 16a of Notman is not in fluid communication with first and second chambers, as called for in claim 22. To this end, it is noted that the Examiner alleged that the catalyst beds 12a and 12b of Notman constitute the claimed first and second chambers. (5/5/04 Office Action at p.3). The central hole of the grid 16a is not in communication with those catalyst beds 12a and 12b.

"

The Examiner disagrees. The teachings of Notman's Figure 1 clearly depict Notman's fluid flow lines as arrows that can be traced between flow paths such that Notman's first (12a) and second (12b) chambers are in "fluid communication" via Notman's first orifice ("central hole"; column 2, lines 1-15; column 7, lines 3-7) as well as others.

14. Applicant states:

"

Again, the motivation cited by the Examiner for such a modification is allegedly to "provide for longer residence time for the flowing gasses." As discussed above in connection with claim 21, Notman does not disclosé any necessity or desirability for providing for longer residence time for the flowing gasses". As a consequence, the Examiner has not provided a legally sufficient motivation or suggestion to modify Notman.

"

The Examiner disagrees. In particular, the Examiner cites Notman (column 3, lines 7-8; column 4, lines 12-17) for the desirability to optimize the dimension (height) of Notman's gas connector passageway such that his gas port disposed between the inlet and outlet of his passageway is to provide for longer residence time for the flowing gasses. Further, it is well established that the duplication of parts is obvious (In re Harza , 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04). Further, It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04).

15. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning ("speculative"; Page 23), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge

gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

16. In response to applicant's argument that there is no suggestion to combine the references of Mundt (USPat. 5,137,701) in view of Alan Notman (USPat. 4,311,671), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the prior art provides proper motivation for combining the references: motivation to replace Mundt's process effluent abatement arrangement with Alan Notman's catalytic gas reactor to process the effluent from Mundt's etch apparatus is to reduce the hazardous process chemicals from the etch reactor as taught by Mundt (column 1, lines 22-33).

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (571) 272-1439.